

IN THE CLAIMS:

Please cancel Claim 5 herein. Claims 12, 14, 15, 25, 27-50, 55, 62, 64-65, 67, 75, and 77-98 were previously cancelled. Claims 2-4, 6-8, 10, 17, 24, 26, 51-54, 56, 57, 74 and 76 have been amended herein. All of the pending claims are presented below. This listing of claims will replace all prior versions and listings of claims in the application. Please enter these claims as amended.

Listing of Claims:

1. (Previously presented) A method of molding a semiconductor assembly comprising:
providing a transfer mold having an inner surface defining at least one mold cavity;
providing at least one semiconductor substrate having an active surface with conductive elements thereon and a back surface thereof;
positioning the at least one semiconductor substrate in the at least one mold cavity of the transfer mold so that portions of the inner surface of the transfer mold abut with the conductive elements of the active surface of the at least one semiconductor substrate;
orienting the active surface of the at least one semiconductor substrate substantially vertically within the at least one mold cavity;
configuring the portions of the inner surface of the transfer mold to comprise a plurality of recesses formed therein, each recess of the plurality defined by an imperforate boundary wall sized and configured to at least partially substantially conformally receive a portion of corresponding conductive elements protruding from the at least one semiconductor substrate; and
introducing a flowable material into the at least one mold cavity so that the flowable material flows around the portions of the inner surface of the transfer mold abutting with the conductive elements on the active surface of the at least one semiconductor substrate.

2. (Currently amended) The method according to claim 1, wherein the providing the transfer mold comprises configuring the transfer mold so that the at least one mold cavity is substantially vertically oriented with at least one gate at a lower portion of the transfer mold and at least one vent at an upper portion of the transfer mold.

3. (Currently amended) The method according to claim 2, wherein the introducing the flowable material comprises:
substantially filling the at least one mold cavity ~~in the~~ in a substantially vertical direction.

4. (Currently amended) The method according to claim 3, wherein the substantially filling the at least one mold cavity comprises:
introducing the flowable material through the at least one gate until a single flow front of the flowable material contacts the at least one vent at the upper portion of the at least one mold cavity.

5. (Cancelled)

6. (Currently amended) The method according to claim 4, wherein the introducing the flowable material comprises:
filling the at least one mold cavity until a single flow front of the flowable material contacts the at least one vent.

7. (Currently amended) The method according to claim 6, wherein the filling the at least one mold cavity with the flowable material comprises:
at least partially encapsulating the at least one semiconductor substrate.

8. (Currently amended) The method according to claim 1, claim 3, wherein the introducing the flowable material in the substantially vertical direction comprises: inducing a substantially uniform flow front.

9. (Previously presented) The method according to claim 1, wherein the introducing the flowable material comprises introducing the flowable material onto the active surface of the at least one semiconductor substrate.

10. (Currently amended) The method according to claim 1, claim 3, wherein the introducing the flowable material onto the active surface of the at least one semiconductor substrate in the substantially vertical direction comprises: substantially preventing voids in the flowable material.

11. (Previously presented) The method according to claim 1, wherein the providing the at least one semiconductor substrate comprises: providing an assembly including the at least one semiconductor substrate.

12. (Cancelled)

13. (Previously presented) The method according to claim 11, wherein the providing the assembly comprises: providing the assembly with the at least one semiconductor substrate comprising at least one semiconductor die having the conductive elements in the form of bond pads thereon, the at least one semiconductor die including conductive structures protruding from the bond pads.

14. (Cancelled)

15. (Cancelled)

16. (Previously presented) The method according to claim 1, wherein the providing the at least one semiconductor substrate comprises:
providing at least one individual semiconductor die.

17. (Currently amended) The method according to claim 16, wherein the providing the at least one individual semiconductor die comprises:
providing the at least one individual semiconductor die with conductive structures protruding therefrom to be received by and abut with the portions of the at least one mold cavity.

18. (Previously presented) The method according to claim 1, wherein the providing the at least one semiconductor substrate comprises:
providing a large-scale semiconductor substrate.

19. (Previously presented) The method according to claim 18, wherein the providing the large-scale semiconductor substrate comprises:
providing a plurality of semiconductor dice interconnected to each other, each of the plurality comprising the conductive elements in the form of bond pads and conductive structures protruding from the bond pads.

20. (Previously presented) The method according to claim 18, wherein the providing the large-scale semiconductor substrate comprises:
providing at least a portion of a wafer.

21. (Previously presented) The method according to claim 1, wherein the introducing the flowable material includes capillary action acting on the flowable material.

22. (Previously presented) The method according to claim 1, wherein the introducing the flowable material includes positive pressure acting on the flowable material.

23. (Previously presented) The method according to claim 1, wherein the introducing the flowable material includes negative pressure acting on the flowable material.

24. (Currently amended) The method according to claim 6, wherein the filling the at least one mold cavity with the flowable material comprises substantially completely encapsulating the at least one semiconductor substrate.

25. (Cancelled)

26. (Currently amended) The method according to claim 1, wherein the providing at least one semiconductor substrate having the active surface with conductive elements thereon comprises providing at least one semiconductor substrate having an active surface with conductive columns or pillars.

27.-50. (Cancelled)

51. (Currently amended) A method for encapsulating a substrate that substantially prevents voids in an encapsulant, the method comprising:
providing a transfer mold having an inner surface defining at least one mold cavity;
providing at least one semiconductor substrate having an active surface with conductive elements thereon and a back surface thereof;
positioning the at least one semiconductor substrate in the at least one mold cavity of the transfer mold so that portions of the inner surface of the transfer mold abut with the conductive elements of the active surface of the at least one semiconductor substrate;

orienting the active surface of the at least one semiconductor substrate substantially vertically within the at least one mold cavity; configuring the portions of the inner surface of the transfer mold to comprise a plurality of recesses formed therein, each of the recesses having an imperforate boundary wall sized and configured to at least partially substantially conformally receive a portion of a corresponding conductive element protruding from the at least one semiconductor substrate; and introducing a flowable material into the at least one mold cavity so that the flowable material flows around the portions of the inner surface of the transfer mold abutting with the conductive elements on the active surface of the at least one semiconductor substrate.

52. (Currently amended) The method according to claim 51, wherein the providing the transfer mold comprises configuring the transfer mold so that the at least one mold cavity is non-horizontally oriented with at least one gate at a lower portion of the transfer mold and at least one vent at an upper portion of the transfer mold.

53. (Currently amended) The method according to claim 52, wherein the introducing the flowable material comprises: substantially filling the at least one mold cavity in a non-horizontal direction.

54. (Currently amended) The method according to claim 53, wherein the substantially filling the at least one mold cavity comprises: introducing the flowable material through the at least one gate until a single flow front of the flowable material contacts the at least one vent at the upper portion of the at least one mold cavity.

55. (Cancelled)

56. (Currently amended) The method according to claim 51, wherein the introducing the flowable material comprises:
filling the at least one mold cavity until the single flow front of the flowable material contacts the at least one vent.

57. (Currently amended) The method according to claim 56, wherein the filling the at least one mold cavity with the flowable material comprises:
at least partially encapsulating the at least one semiconductor substrate.

58. (Previously presented) The method according to claim 51, wherein the introducing the flowable material comprises:
inducing a substantially uniform flow front.

59. (Previously presented) The method according to claim 51, wherein the introducing the flowable material comprises permitting the flowable material to flow onto the active surface of the at least one semiconductor substrate.

60. (Previously presented) The method according to claim 51, wherein the introducing the flowable material comprises:
substantially preventing voids in the flowable material.

61. (Previously presented) The method according to claim 51, wherein the providing the at least one semiconductor substrate comprises:
providing an assembly including the at least one semiconductor substrate.

62. (Cancelled)

63. (Previously presented) The method according to claim 61, wherein the providing the assembly comprises:

providing the assembly with the at least one semiconductor substrate including at least one semiconductor die having the conductive elements in the form of bond pads thereon, the at least one semiconductor die including conductive structures protruding from the bond pads.

64. (Cancelled)

65. (Cancelled)

66. (Previously presented) The method according to claim 51, wherein the providing the at least one semiconductor substrate comprises:

providing at least one individual semiconductor die.

67. (Cancelled)

68. (Previously presented) The method according to claim 51, wherein the providing the at least one semiconductor substrate comprises:

providing a large-scale semiconductor substrate.

69. (Previously presented) The method according to claim 68, wherein the providing the large-scale semiconductor substrate comprises:

providing a plurality of semiconductor dice interconnected to each other, each of the plurality

comprising at least one of bond pads and conductive structures protruding from the bond pads.

70. (Original) The method according to claim 68, wherein the providing the large-scale substrate comprises:
providing at least a portion of a wafer.

71. (Previously presented) The method according to claim 51, wherein the introducing the flowable material includes capillary action acting on the flowable material.

72. (Previously presented) The method according to claim 51, wherein the introducing the flowable material includes positive pressure on the flowable material.

73. (Previously presented) The method according to claim 51, wherein the introducing the flowable material includes negative pressure on the flowable material.

74. (Currently amended) The method according to claim 56, wherein the filling the at least one mold cavity with the flowable material comprises at least partially encapsulating the at least one semiconductor substrate.

75. (Cancelled)

76. (Currently amended) The method according to claim 51, wherein the providing at least one semiconductor substrate having an active surface with conductive elements thereon comprises providing at least one semiconductor substrate having an active surface with conductive columns or pillars.

77.-98. (Cancelled)